

Fig. 1

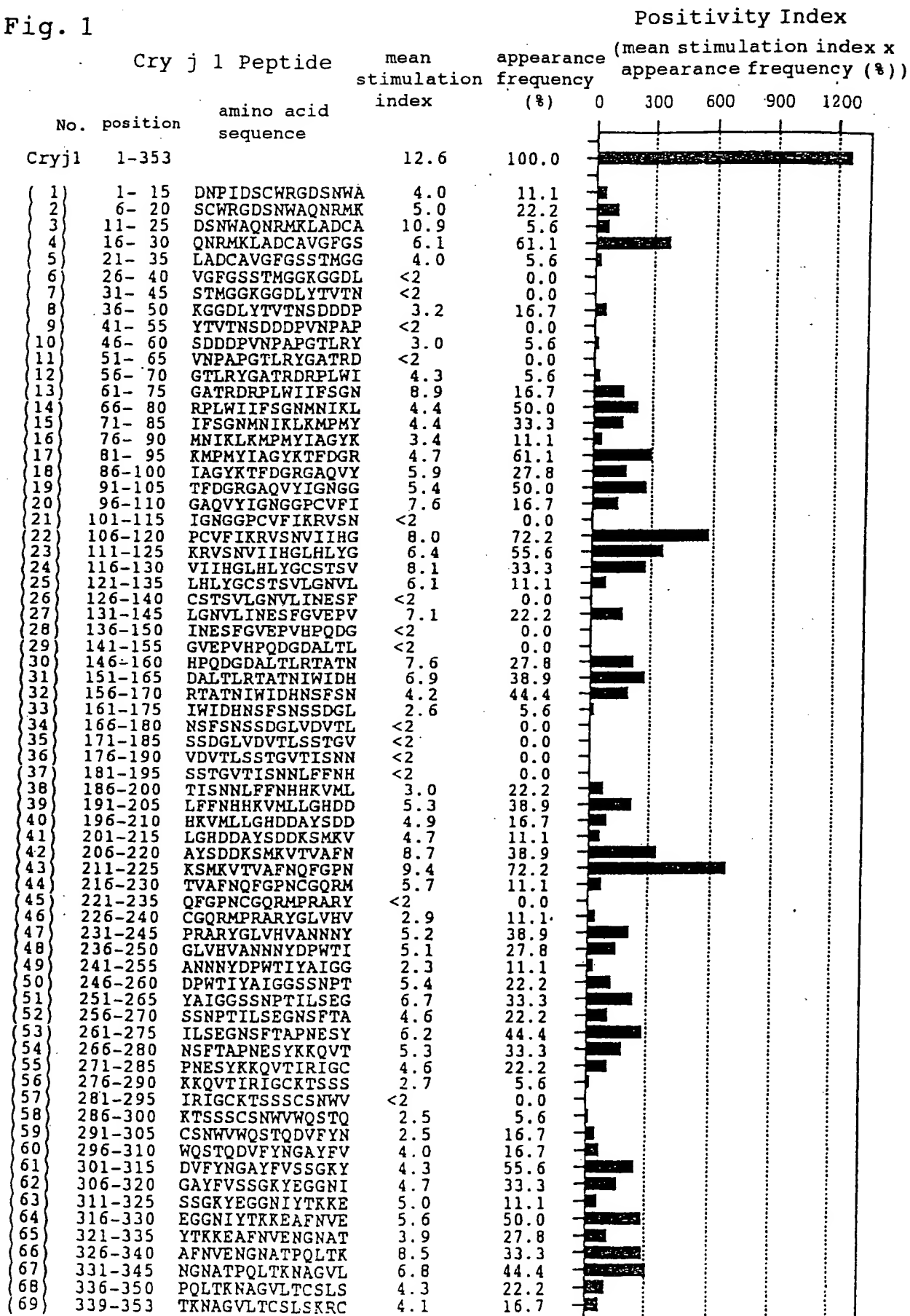


Fig. 2

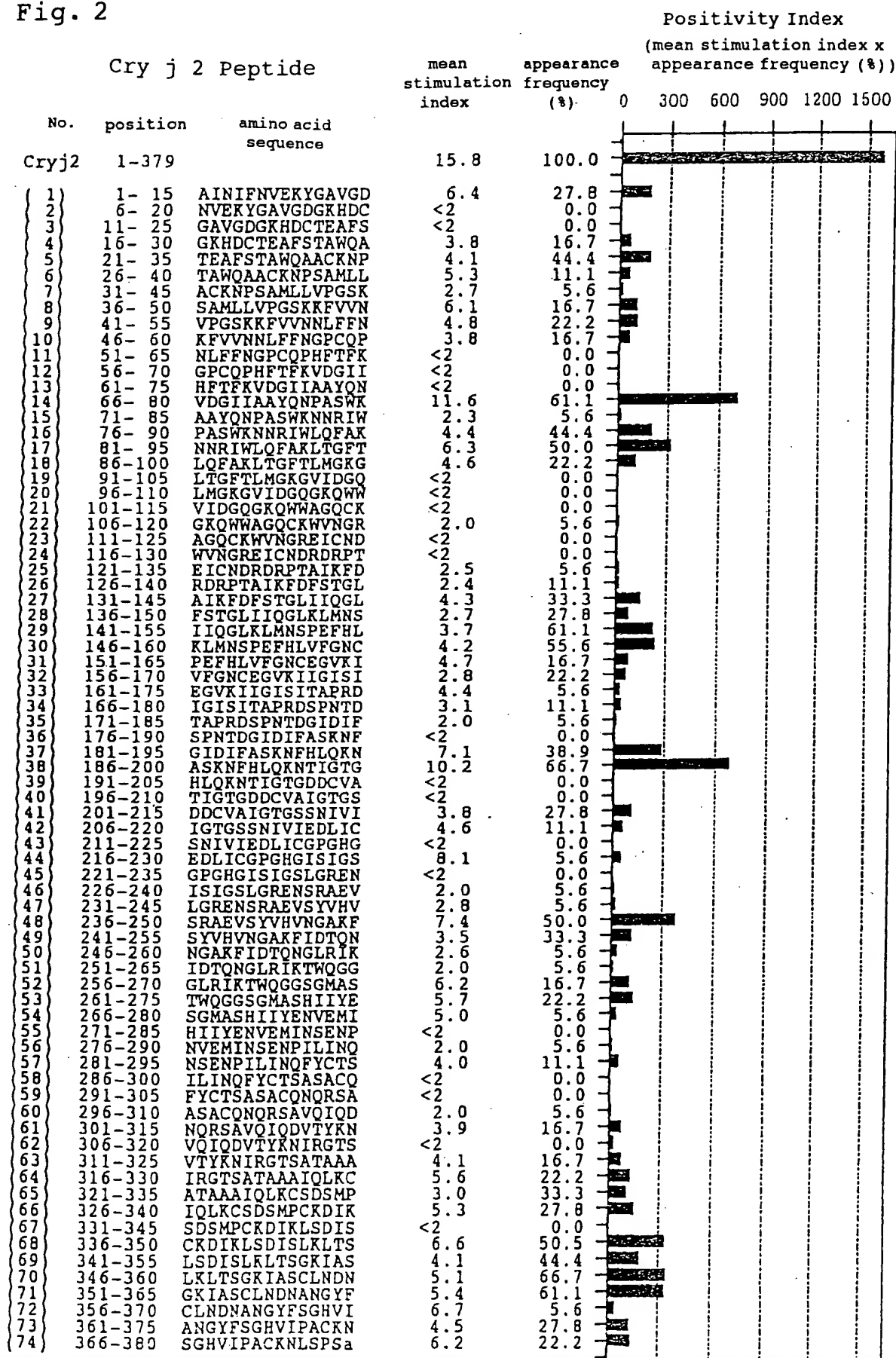


Fig. 3

Th type of T cell clone capable of recognizing Cry j 1

| T cell clone | epitope site | | Restriction molecule | lymphokine production (pg/ml) | | | Th* type |
|--------------|--------------|----------|------------------------|-------------------------------|--------------|-------|----------|
| | No. | Position | | IL-2 | IFN γ | IL-4 | |
| PJ4-6 | 4 | 16- 30 | DQA1*0102 DQB1*0602 | <31 | 1500 | 334 | Th0 |
| PB8-1 | 4 | 16- 30 | " | <31 | <31 | 814 | Th2 |
| PB9-37 | 13 | 61- 75 | DPA1*0101-DPB1*0501 | <31 | <31 | 7760 | Th2 |
| PB10-24 | 13 | 61- 75 | " | 39 | 151 | 4500 | Th2 |
| PJ1-27 | 19 | 91-105 | DQ | 32 | 1220 | 224 | Th0 |
| PB3-27 | 22 | 106-120 | DRB5*0101 | 250 | 332 | 21000 | Th2 |
| PB8-2 | 22 | 106-120 | " | 190 | 2110 | 5709 | Th0 |
| PB8-3 | 22 | 106-120 | " | <31 | 1270 | 10100 | Th0 |
| PB9-39 | 22 | 106-120 | " | 48 | 51 | 5120 | Th2 |
| PB10-18 | 22 | 106-120 | " | 410 | 46 | 7840 | Th2 |
| PJ4-29 | 22 | 106-120 | " | 4680 | 14200 | 6610 | Th0 |
| PJ7-9 | 22 | 106-120 | " | 1370 | 1040 | 12200 | Th2 |
| PJ5-6 | 30 | 145-160 | DQA1*0102-DQB1*0602 | 1500 | 1170 | 5920 | Th0 |
| PJ5-9 | 30 | 145-160 | " | 1720 | 825 | 266 | Th0 |
| PB11-21 | 31 | 151-165 | DRB1*0901 | 4190 | >20000 | 4510 | Th0 |
| PB11-24 | 31 | 151-165 | " | 670 | 11700 | 1950 | Th0 |
| PB6-37 | 31 | 151-165 | " | <31 | <31 | 49 | Th2 |
| PB1-8 | 39 | 191-205 | DQA1*0102-DQB1*0602 | 820 | 188 | 1760 | Th0 |
| PB9-34 | 39 | 191-205 | DRB1*0901 OR DRB4*0101 | <31 | 86 | 1680 | Th2 |
| PB2-14 | 43 | 211-225 | DPA1*0101-DPB1*0501 | <31 | 376 | 2320 | Th0 |
| PB7-2 | 43 | 211-225 | " | 84 | 2740 | 2080 | Th0 |
| PB8-32 | 43 | 211-225 | " | <31 | 4870 | 1840 | Th0 |
| PB8-34 | 43 | 211-225 | " | 78 | 14800 | 3040 | Th0 |
| PB11-23 | 43 | 211-225 | " | <31 | 3990 | 1260 | Th0 |
| PB11-26 | 43 | 211-225 | " | 32 | 1100 | 6520 | Th0 |
| PB4-20 | 43 | 211-225 | " | <31 | <31 | 133 | Th2 |
| PB10-4 | 43 | 211-225 | " | <31 | <31 | 4170 | Th2 |
| PB8-4 | 51 | 251-265 | DQA1*0102-DQB1*0602 | 44 | 36 | 4050 | Th2 |
| PJ4-20 | 66 | 326-340 | DQA1*0102-DQB1*0602 | 560 | 3080 | <32 | Th1 |

* IL-4/IFN- γ > 10 and IFN- γ /IL-4 > 10 are defined to be Th2 and Th1, respectively, and Th0 means inbetween.

Fig. 4

Th type of T cell clone capable of recognizing Cry j 2

| T cell clone | epitope site | | Restriction molecule | lymphokine production (pg/ml) | | | Th* type |
|--------------|--------------|----------|------------------------|-------------------------------|--------------|------|----------|
| | No. | Position | | IL-2 | IFN γ | IL-4 | |
| PB5-29 | 4 | 16- 30 | DRB1*0901 OR DRB4*0101 | <31 | 503 | 97 | Th0 |
| PB11-40 | 4 | 16- 30 | " | <31 | <31 | 50 | Th2 |
| PB14-4 | 4 | 16- 30 | " | <31 | <31 | <16 | Thp |
| PB12-33 | 8 | 36- 50 | DRB1*1501 | <31 | >8000 | <16 | Th1 |
| PR2-25 | 8 | 36- 50 | " | 47 | <31 | 977 | Th2 |
| PR5-40 | 8 | 36- 50 | " | 1150 | 1330 | 355 | Th0 |
| PB3-32 | 14 | 66- 80 | DRB5*0101 | <31 | <31 | 323 | Th2 |
| PB4-21 | 14 | 66- 80 | " | <31 | 109 | 239 | Th0 |
| PB4-22 | 14 | 66- 80 | " | <31 | 483 | 158 | Th0 |
| PC1-8 | 14 | 66- 80 | " | <31 | 2710 | 32 | Th1 |
| PR4-20 | 14 | 66- 80 | " | <31 | 312 | 338 | Th0 |
| PR3-21 | 14 | 66- 80 | " | <31 | <31 | 338 | Th2 |
| PB13-18 | 17 | 76- 90 | DPA1*0101-DPB1*0501 | <31 | 3320 | 231 | Th1 |
| PB11-32 | 17 | 76- 90 | " | 138 | 60 | 2090 | Th2 |
| PR1-20 | 31 | 151-165 | DRB1*0901 | <31 | <31 | 18 | Th2 |
| PR4-39 | 31 | 151-165 | " | <31 | <31 | <16 | Thp |
| PB14-5 | 37 | 181-195 | DPA1*0101-DPB1*0201 | 87 | 126 | 469 | Th0 |
| PB14-13 | 37 | 181-195 | " | <31 | 59 | 2440 | Th2 |
| PB14-34 | 38 | 186-200 | DRB4*0101 | 186 | 420 | 93 | Th0 |
| PC3-40 | 38 | 186-200 | " | <31 | <31 | 379 | Th2 |
| PB5-3 | 48 | 236-250 | DRB1*1501 OR DRB5*0101 | 2570 | >8000 | 525 | Th1 |
| PR2-34 | 65 | 321-335 | DRB1*0901 | 57 | 1990 | 464 | Th0 |
| PR3-30 | 66 | 326-340 | DQA1*0102-DQB1*0602 | <31 | 106 | <80 | Th1 |
| PR5-18 | 66 | 326-340 | " | <31 | <31 | <16 | Thp |
| PC1-13 | 68 | 336-350 | DPA1*0202-DPB1*0501 | <31 | <31 | <16 | Thp |
| PB12-8 | 69 | 341-355 | DQA1*0102-DQB1*0602 | <31 | 3210 | <16 | Th1 |
| PR5-12 | 69 | 341-355 | " | <31 | <31 | 2528 | Th2 |
| PR2-31 | 69 | 341-355 | " | <31 | <31 | 332 | Th2 |
| PB14-19 | 70 | 346-360 | " | <31 | 3730 | <16 | Th1 |
| PB13-38 | 70 | 346-360 | " | <31 | 2020 | <16 | Th1 |

* IL-4/IFN- γ > 10 and IFN- γ /IL-4 > 10 are defined to be Th2 and Th1, respectively, Th0 means inbetween, and Thp means not showing the production of lymphokine.

Fig. 5

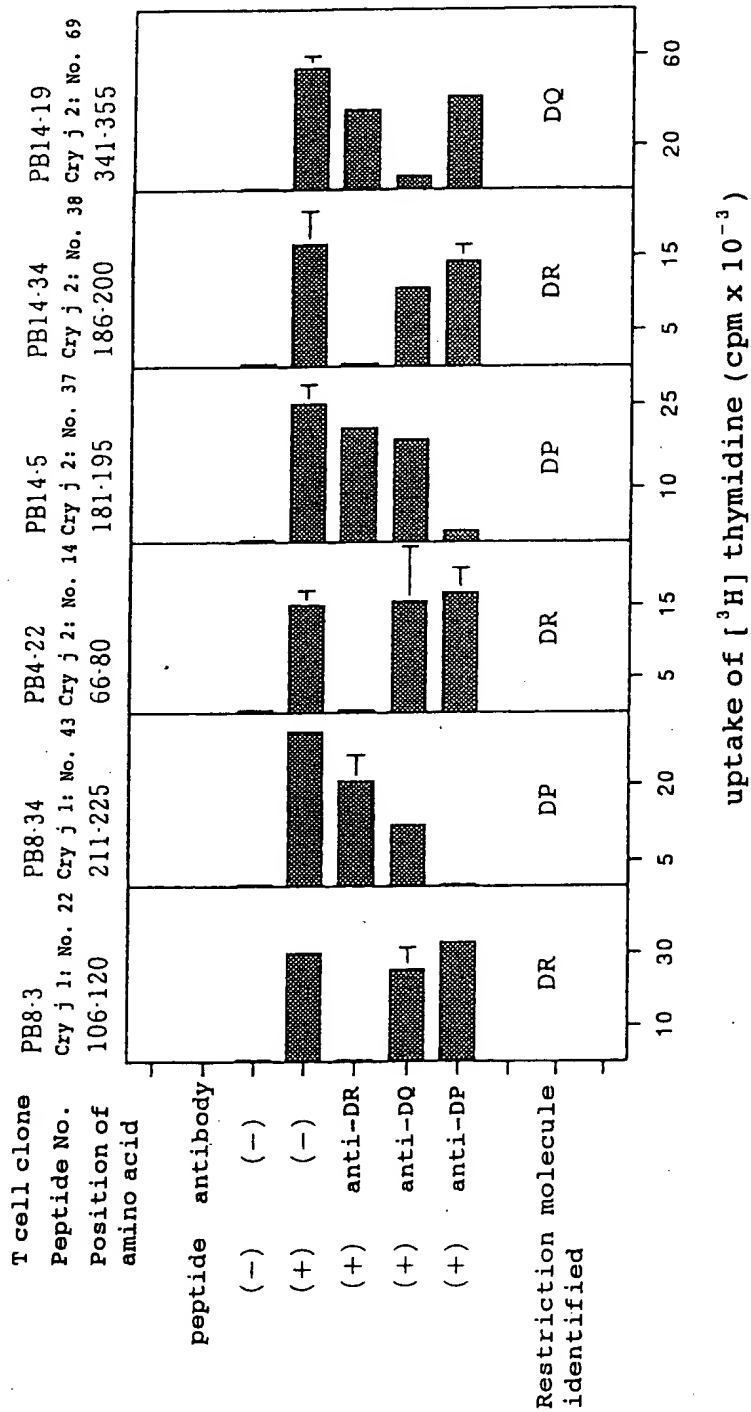
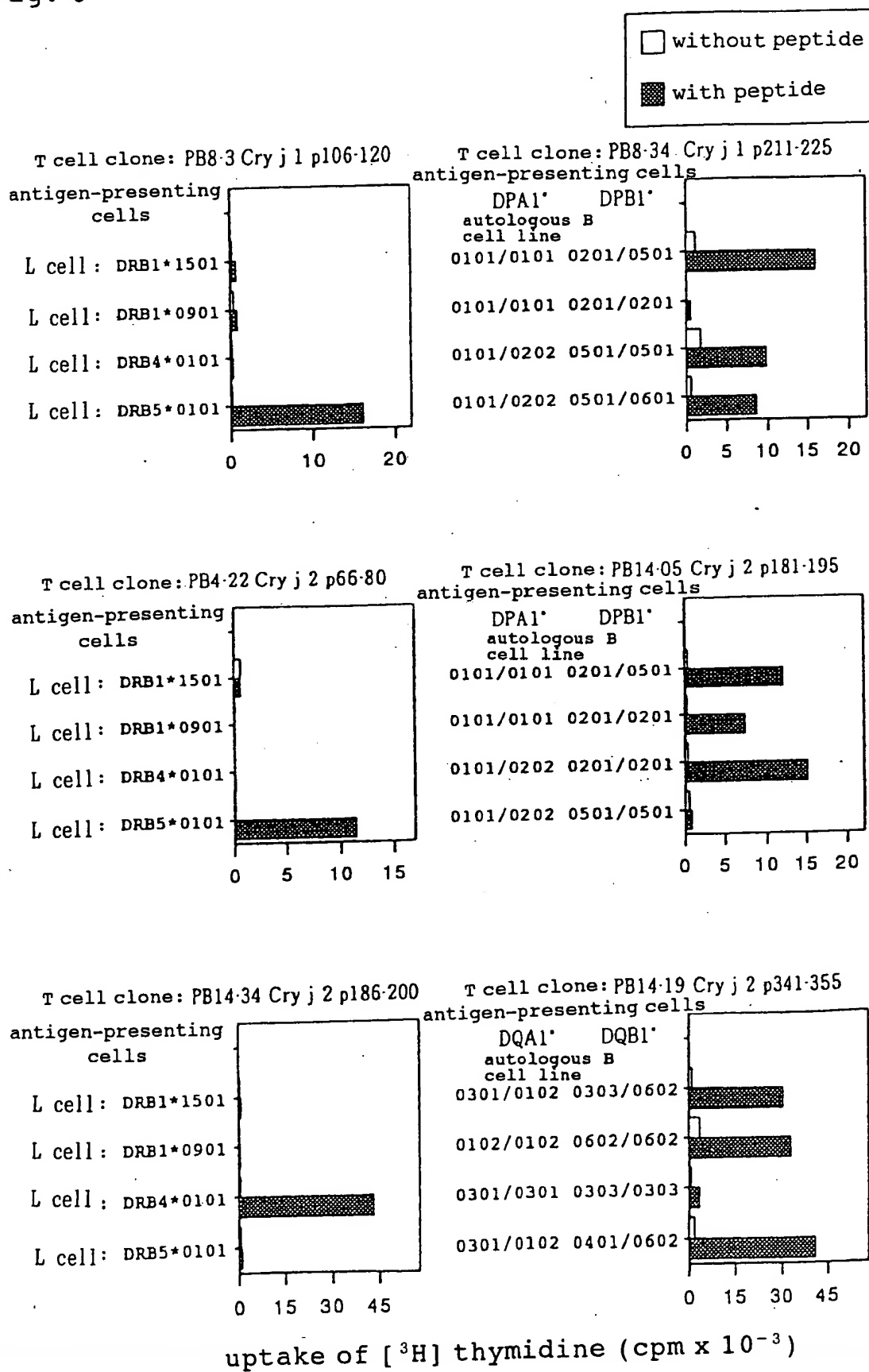


Fig. 6



09142524

Fig. 7

- a Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe Gly Pro Asn 43
 b Pro Cys Val Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly 22
 c Val Asp Gly Ile Ile Ala Ala Tyr Gln Asn Pro Ala Ser Trp Lys 14
 d Gly Ile Asp Ile Phe Ala Ser Lys Asn Phe His Leu Gln Lys Asn Thr Ile 37
 Gly Thr Gly
 e Leu Lys Leu Thr Ser Gly Lys Ile Ala Ser Cys Leu Asn Asp Asn Ala Asn 38
 Gly Tyr Phe

p18-20

p346-512

J" 42524T60

Fig. 8

Reactivity of Peptide Compositions (#1 - #6)
with Human IgE

| Sample No. (sera) | Blank | Cedar pollen- extracted antigen | C.A. # 1 | C.A. # 2 | C.A. # 3 | C.A. # 4 | C.A. # 5 | C.A. # 6 |
|-------------------------|-------|------------------------------------|----------|----------|----------|----------|----------|----------|
| 1 | 3 | 2105 | 5 | 4 | 3 | 4 | 4 | 4 |
| 2 | 3 | 1133 | 4 | 4 | 4 | 4 | 4 | 4 |
| 3 | 3 | 1126 | 3 | 3 | 3 | 4 | 4 | 3 |
| 4 | 3 | 1095 | 4 | 3 | 3 | 3 | 3 | 3 |
| 5 | 3 | 1047 | 3 | 3 | 3 | 3 | 3 | 3 |
| 6 | 3 | 1003 | 3 | 4 | 3 | 3 | 3 | 3 |
| 7 | 4 | 710 | 4 | 4 | 4 | 4 | 4 | 4 |
| 8 | 3 | 521 | 3 | 3 | 3 | 3 | 3 | 3 |
| 9 | 3 | 314 | 3 | 3 | 4 | 3 | 4 | 4 |
| 10 | 3 | 298 | 3 | 3 | 4 | 4 | 4 | 3 |
| 11 | 3 | 279 | 3 | 3 | 3 | 3 | 3 | 3 |
| 12 | 3 | 253 | 3 | 3 | 3 | 3 | 3 | 3 |
| 13 | 3 | 239 | 3 | 3 | 3 | 3 | 3 | 3 |
| 14 | 3 | 235 | 4 | 4 | 3 | 3 | 3 | 3 |
| 15 | 3 | 233 | 3 | 3 | 3 | 3 | 4 | 3 |
| 16 | 3 | 226 | 4 | 4 | 3 | 3 | 3 | 3 |
| 17 | 3 | 190 | 3 | 3 | 3 | 3 | 3 | 3 |
| 18 | 3 | 162 | 4 | 4 | 4 | 4 | 4 | 4 |
| 19 | 3 | 123 | 3 | 3 | 3 | 3 | 3 | 3 |
| 20 | 3 | 106 | 3 | 3 | 3 | 3 | 4 | 3 |
| 21 | 4 | 45 | 3 | 3 | 3 | 3 | 3 | 4 |
| 22 | 3 | 14 | 3 | 3 | 3 | 3 | 3 | 3 |
| 23 | 3 | 13 | 3 | 3 | 3 | 3 | 3 | 3 |
| 24 | 3 | 11 | 3 | 3 | 3 | 3 | 3 | 3 |
| 25 | 3 | 5 | 4 | 3 | 3 | 3 | 4 | 4 |
| 26 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 3 |
| 27 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 28 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 29 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 |
| Rabbit anti-peptide IgG | 112 | 230 | 3754 | 3829 | 3769 | 3716 | 3841 | 3798 |

Fig. 9

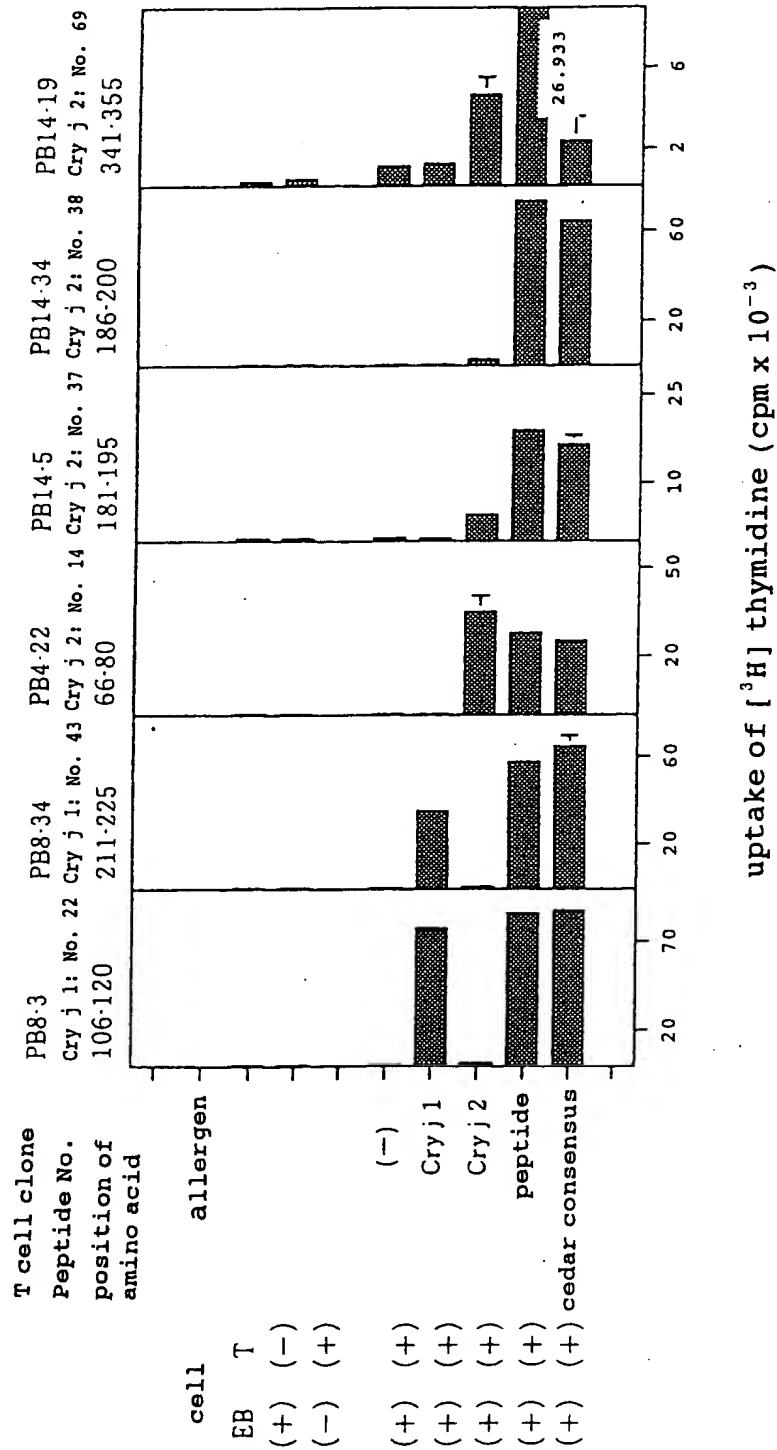


Fig. 10

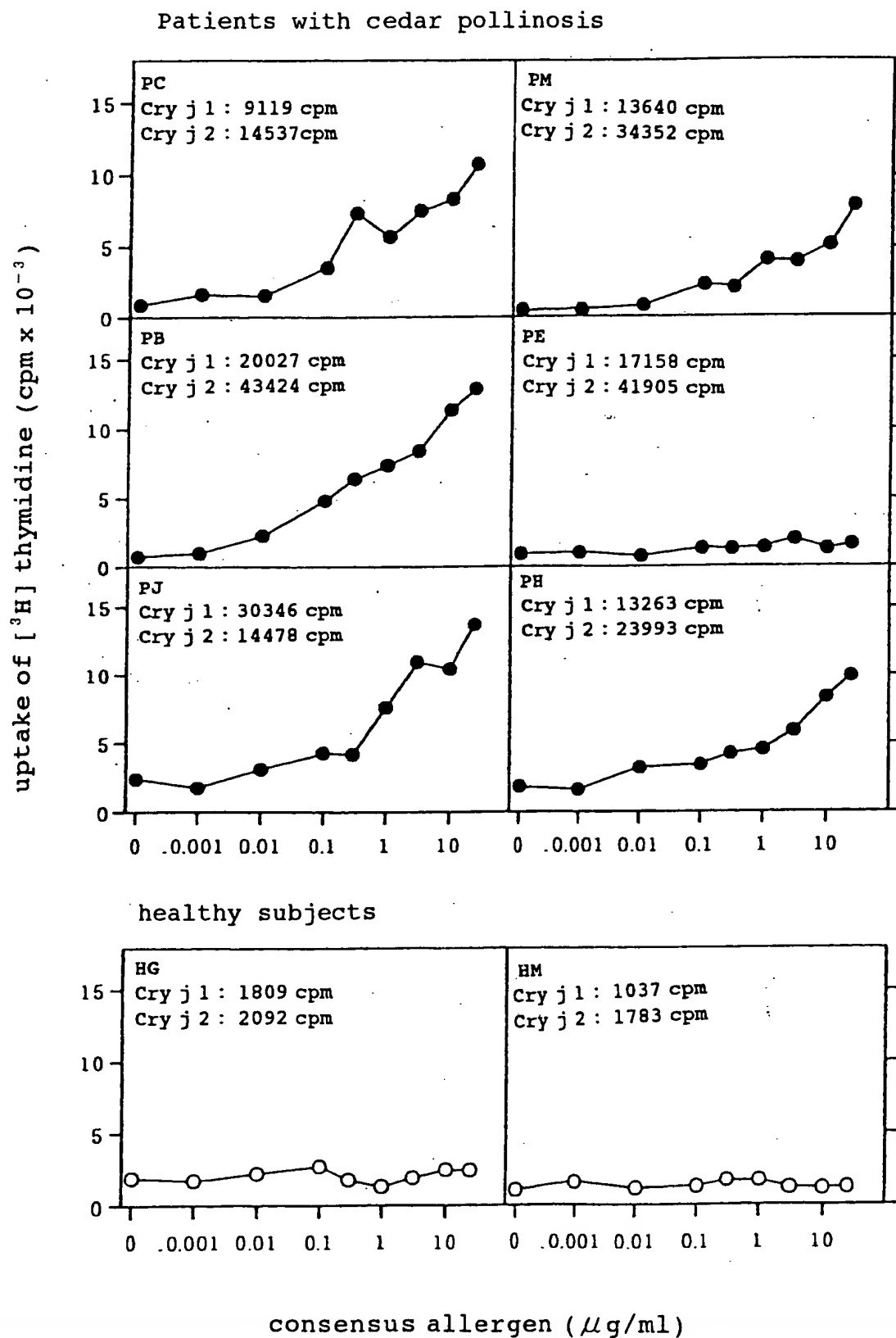


Fig. 11

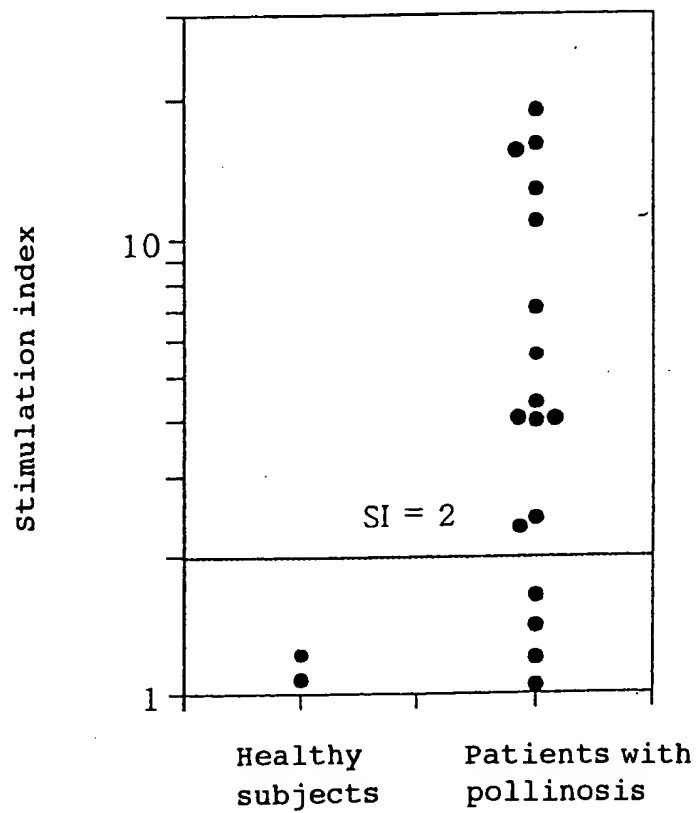


Fig. 12

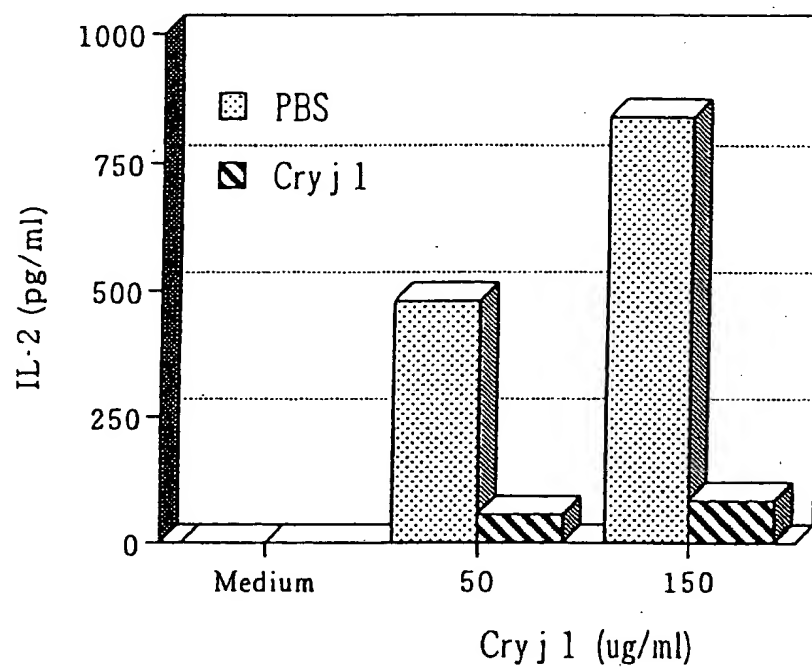


Fig. 13

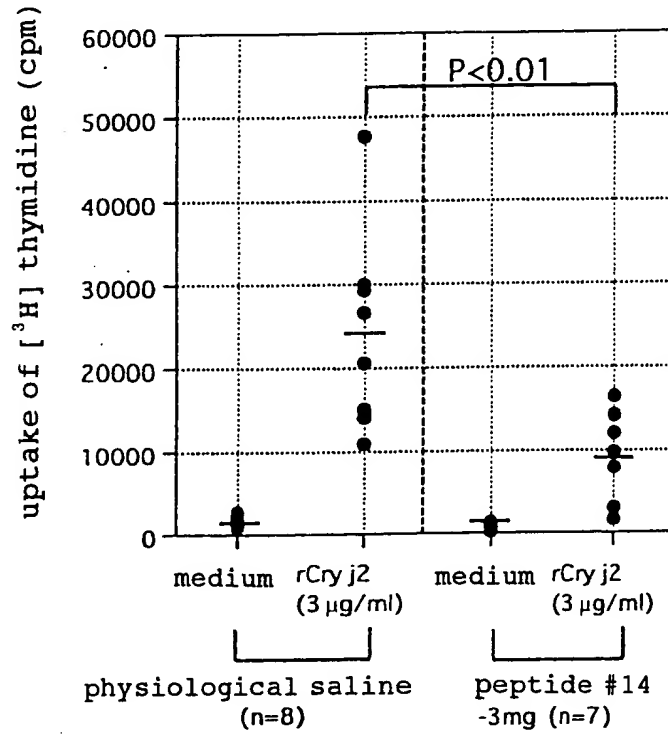
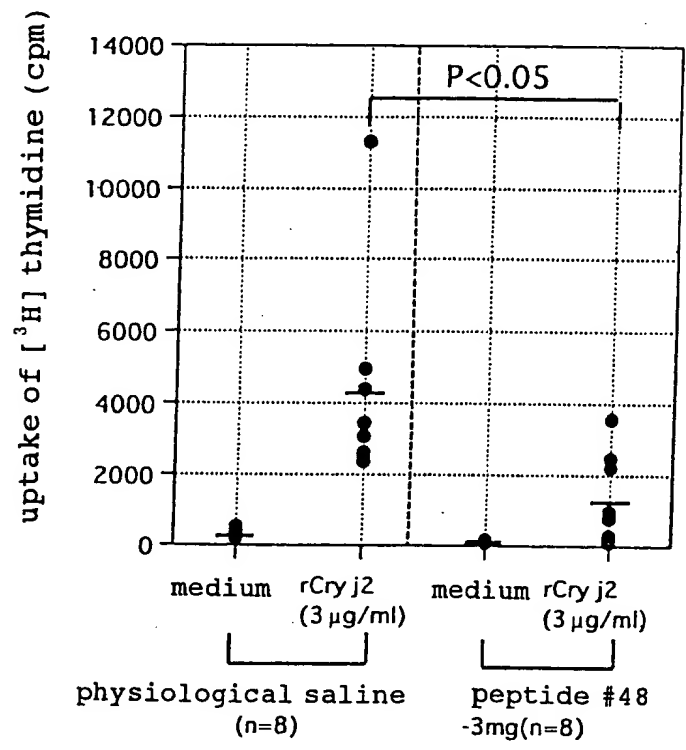
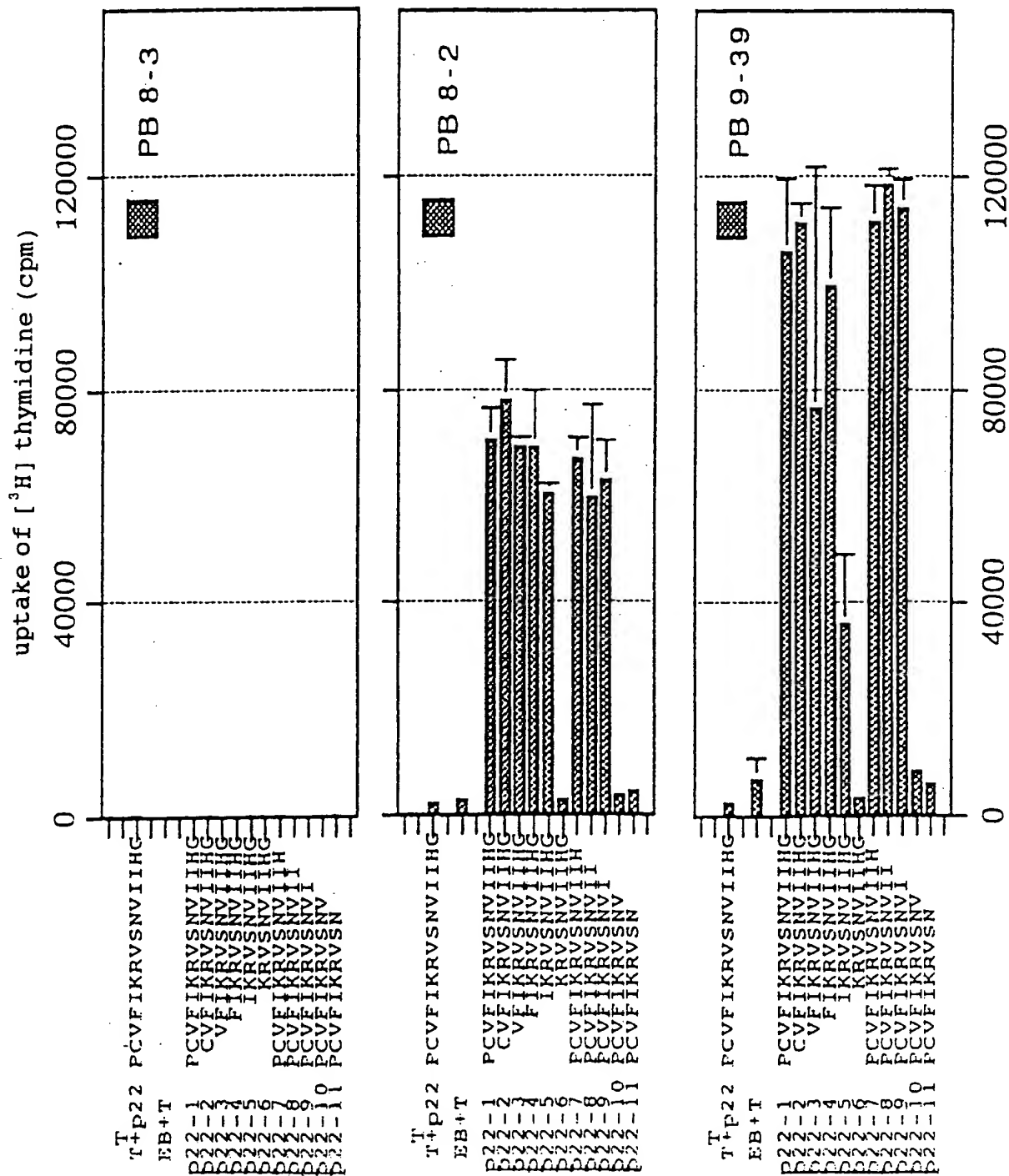


Fig. 14



T cell clone



T cell line

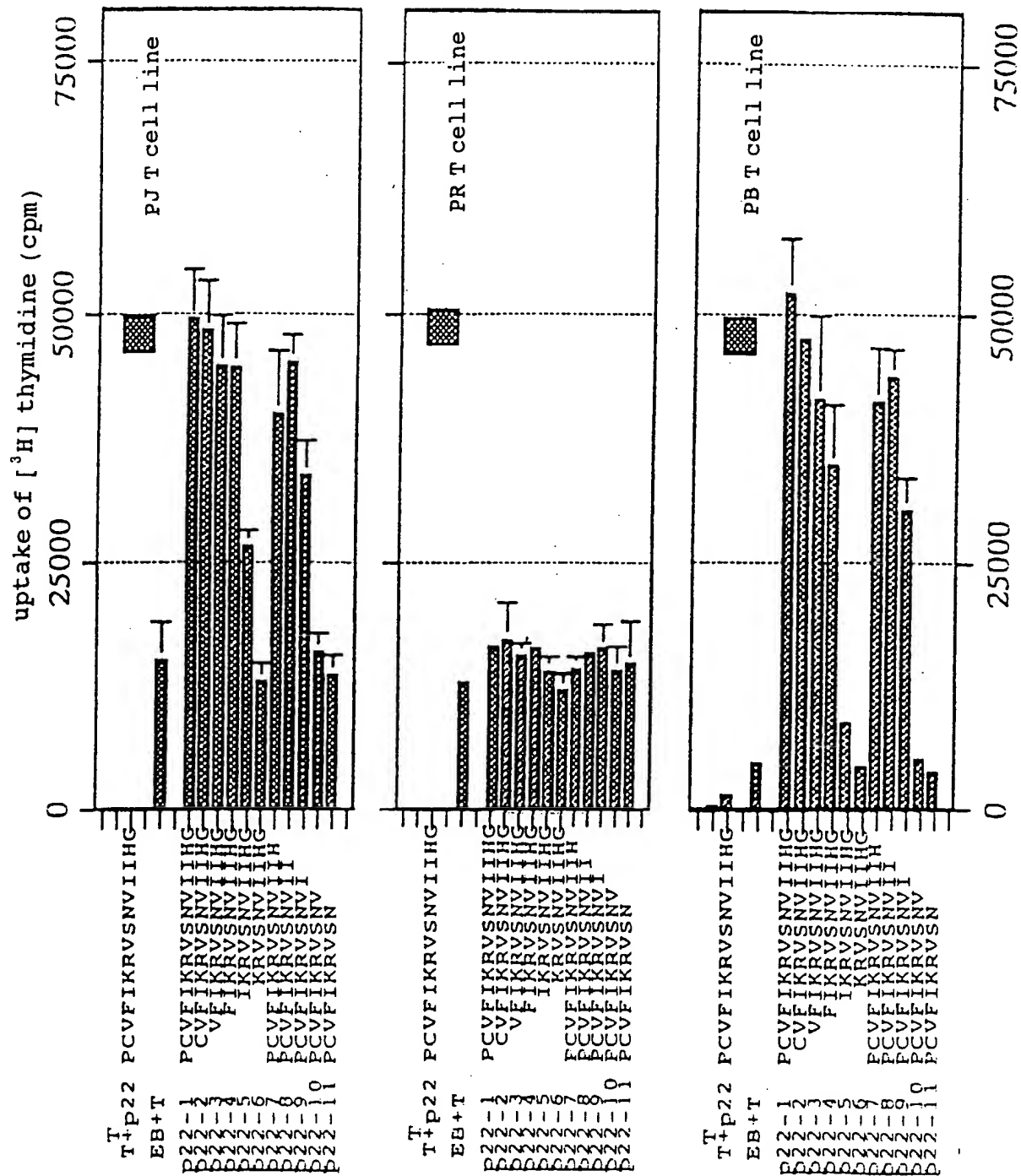


Fig. 16

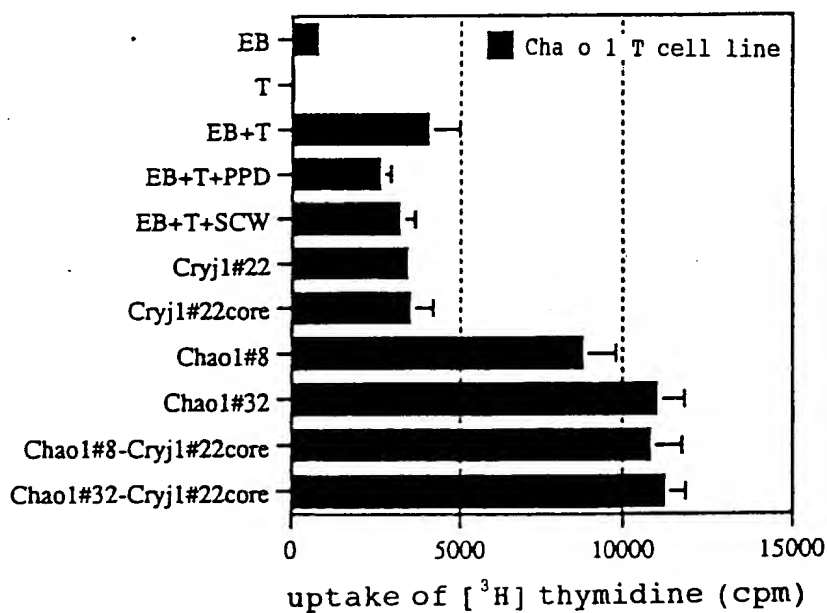
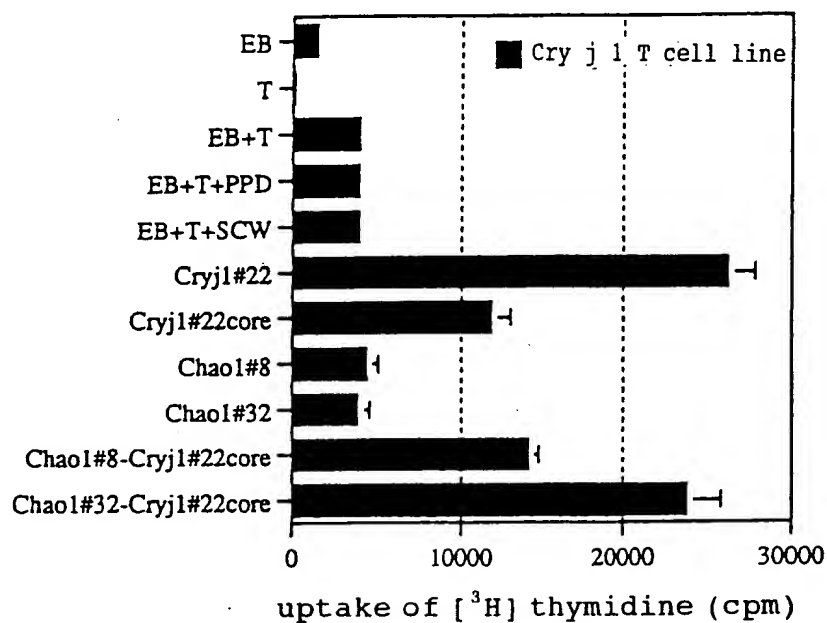


Fig. 17

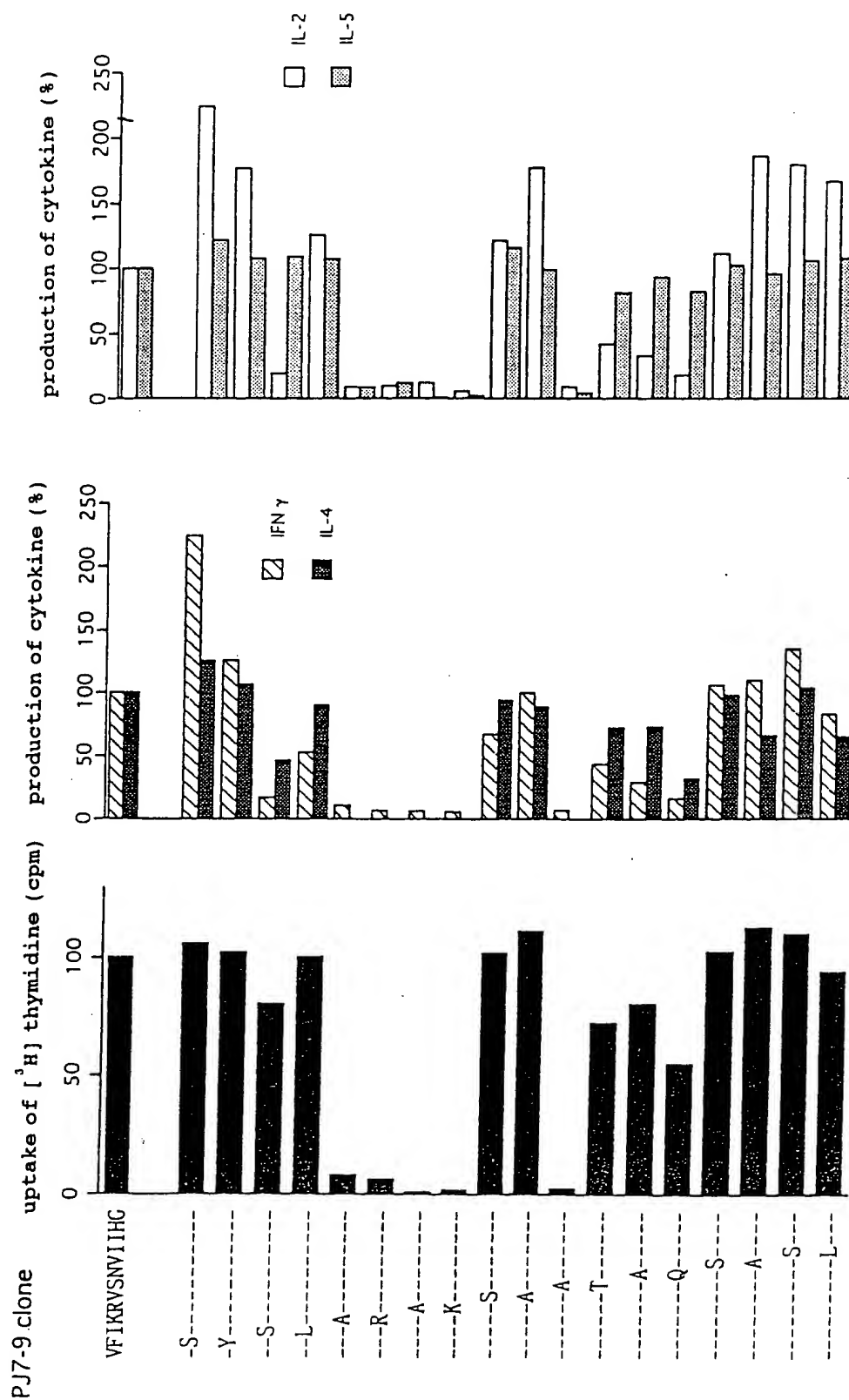


Fig.18

